

Enrollment No.: _____

Seat No.: _____

GUJARAT TECHNOLOGICAL UNIVERSITY
MBA - SEMESTER - IV EXAMINATION - WINTER 2025

Subject Code: 4549272

Date: 17-12-2025

Subject Name: Quality Management

Time: 02:30 PM TO 05:30 PM

Total Marks: 70

Instructions

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use of simple calculators and non-programmable scientific calculators are permitted.

Q. No.	Question Text and Description	Marks
Q.1	Define the following terms in short (a) Quality (b) Product (c) User (d) Value (e) Manufacturing (f) Costs of quality (g) Transcendental	14
Q.2	(a) Define and explain the key perspectives used in defining quality. Provide examples for each perspective to illustrate their significance in evaluating the quality of products or services. (b) What is "Quality Trilogy"? Explain the three key components of the Quality Trilogy.	07 07
	OR	
	(b) Explain the Deming Cycle, also known as PDCA in the context of quality management.	07
Q.3	(a) Explain Quality of Design, Performance Quality, and Conformance Quality with example. (b) Write a note on 5S Quality Improvement Tool.	07 07
	OR	
Q.3	(a) Define the concept of a Quality Management System. Identify and describe common obstacles and challenges that organizations may encounter when attempting to implement a Quality Management System. (b) Explain the different categories of costs associated with quality management.	07 07
Q.4	(a) Describe the four main phases of Quality Function Deployment (QFD) implementation. (b) What is FMEA? Explain the stages involved in conducting a FMEA.	07 07
	OR	
Q.4	(a) What is TQM? Explain the Eight Principles of TQM. (b) Analyze the concept of "Hidden Failure Costs" in the context of quality management and discuss the challenges organizations may face in identifying and addressing these hidden costs.	07 07
Q.5	Case Study: Six Sigma Implementation at General Motors	

General Motors (GM), a global automotive giant, embarked on a transformative journey by implementing Six Sigma principles and methodologies to enhance its operational efficiency and product quality. In response to market pressures and customer demands for improved reliability and value, GM recognized the need to streamline its processes and reduce defects systematically.

Initiation and Leadership Commitment:

At the core of GM's Six Sigma initiative was a resolute commitment from top leadership, including the CEO and senior executives. They realized that Six Sigma offered a structured approach to drive quality improvement and operational excellence throughout the organization. To lead this effort, GM appointed champions and trained a cadre of Black Belts and Master Black Belts, responsible for overseeing Six Sigma projects, guiding teams, and ensuring successful implementation.

Comprehensive Training and Education:

GM made significant investments in training its workforce in Six Sigma methodologies. Employees at all levels underwent extensive training to become Green Belts, Black Belts, or Master Black Belts, depending on their roles. This comprehensive education aimed to infuse Six Sigma thinking and problem-solving into the corporate culture.

Project Selection and DMAIC Methodology:

GM meticulously selected projects with the potential to make a substantial impact on quality, cost efficiency, and customer satisfaction. These projects addressed critical issues such as reducing defects in vehicle assembly, enhancing supplier quality, and optimizing production processes. The DMAIC (Define, Measure, Analyze, Improve, Control) methodology guided these projects, offering a structured framework for problem-solving and continuous improvement.

Data-Driven Decision-Making:

GM embraced a data-centric approach to decision-making. The company collected and analyzed extensive data to pinpoint the root causes of defects, process variations, and inefficiencies. This data-driven approach empowered GM to make informed decisions, fine-tune processes, and systematically eliminate defects.

Results and Cultural Transformation:

The Six Sigma initiative at GM yielded impressive results. Defect rates plummeted, leading to significant cost savings and improved operational efficiency. Collaborative efforts with suppliers resulted in higher supplier quality. These improvements, in turn, translated into enhanced customer satisfaction and bolstered GM's brand reputation. GM's corporate culture transformed into one of continuous improvement and data-driven decision-making.

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| (a) Explain how GM's leadership commitment played a pivotal role in the success of its Six Sigma initiative? | 07 |
| (b) Discuss the key phases of GM's Six Sigma implementation. | 07 |
| OR | |
| (a) Analyze the tangible results and benefits GM achieved through its Six Sigma initiative. | 07 |
| (b) What challenges or obstacles might GM have faced during its Six Sigma journey? | 07 |
